

I. AMENDMENTS TO THE CLAIMS:

1-17. (Canceled)

18. (Currently Amended) Thermoprocessable tetrafluoroethylene (TFE) copolymers in gel form obtained by adding to a polymer latex, produced by polymerization in dispersion or aqueous emulsion of TFE with one or more monomers containing at least one unsaturation of ethylene type selected from the following:

- C₃-C₈ perfluoroolefins;
- C₂-C₈ hydrogenated fluoroolefins, selected from vinyl fluoride (VF), vinylidene fluoride (VDF), tri-fluoroethylene, hexafluoroisobutene and (perfluoroalkyl)ethylene perfluoroalkylethylene CH₂=CH-R_f, wherein R_f is a C₁-C₆ perfluoroalkyl;
- C₂-C₈ chloro- and/or bromo- and/or iodo-fluoroolefins;
- (per) fluoroalkylvinylethers (PAVE) CF₂=CFOR_f, wherein R_f is a C₁-C₆ (per) fluoroalkyl;
- (per) fluoro-oxyalkylvinylethers CF₂=CFOX, wherein X is: a C₁-C₁₂ alkyl, a C₁-C₁₂ oxyalkyl, or a C₁-C₁₂ (per) - fluoro oxyalkyl having one or more ether groups;
- fluorodioxoles;
- non conjugated dienes selected from the following of the type:

$\text{CF}_2=\text{CFOCF}_2\text{CF}_2\text{CF}=\text{CF}_2$,

$\text{CFX}^1=\text{CX}^2\text{OCX}^3\text{X}^4\text{OCX}^2=\text{CX}^1\text{F}$

wherein X^1 and X^2 , equal to or different from each other, are F, Cl or H;

X^3 and X^4 , equal to or different from each other, are F or CF_3 , which

during the polymerization cyclopolymerize; and

fluorovinylethers (MOVE) of general formula:

$\text{CFX}_{\text{AI}}=\text{CX}_{\text{AI}}\text{OCF}_2\text{OR}_{\text{AI}}$ (A-I) wherein R_{AI} is a C₂-C₆ linear, branched or C₅-C₆ cyclic (per)fluoroalkyl group, or a C₂-C₆ linear, branched (per) fluoro oxyalkyl group, containing from one to three oxygen atoms; when R_{AI} is a fluoroalkyl or a fluoroxyalkyl group as above it can contain from 1 to 2 atoms, equal or different, selected from the following: H, Cl, Br, I; $X_{\text{AI}} = \text{F}, \text{H}; \text{and}$

an acid electrolyte having pH values ≤ 2 ,

washing the polymeric gel with acid aqueous solutions or neutral aqueous solutions having a pH from 1 to 7;

wherein the thermoprocessable TFE copolymers contain an amount of extractable cations lower than 1 ppm and an amount of surfactant lower than 10 ppm

~~wherein the thermoprocessable TFE copolymers have been purified by:~~

- a) ~~transforming a polymer latex of thermoprocessable TFE copolymers, obtained by the polymerization in dispersion or aqueous emulsion, into~~

~~gel form, under mechanical stirring, by addition of an acid electrolyte having pH values ≤ 2;~~

b) ~~washing of the polymer gel with acid aqueous solutions or neutral aqueous solutions having pH from 1 to 7.~~

19. (Previously Presented) The thermoprocessable TFE copolymers of claim 18, wherein the C₃-C₈ perfluoroolefin is hexafluoropropene (HFP).

20. (Previously Presented) The thermoprocessable TFE copolymers of claim 18, wherein the C₂-C₈ chloro-fluoroolefin is chlorotrifluoroethylene (CTFE).

21. (Previously Presented) The thermoprocessable TFE copolymers of claim 18, wherein the R_f of (per) fluoroalkylvinylethers (PAVE) CF₂=CFOR_f is CF₃, C₂F₅ or C₃F₇.

22. (Previously Presented) The thermoprocessable TFE copolymers of claim 18, wherein the C₁-C₁₂ (per) - fluoro oxyalkyl having one or more ether groups of (per) fluoro-oxyalkylvinylether CF₂=CFOX is perfluoro-2-propoxy propyl.

23. (Previously Presented) The thermoprocessable TFE copolymers of claim 18, wherein the fluorodioxoles are perfluorodioxoles.

24. (Previously Presented) The thermoprocessable TFE copolymers of claim 18, wherein hydrogenated olefins are used in addition to the fluorinated comonomers.

25. (Previously Presented) The thermoprocessable TFE copolymers of claim 18, wherein the comonomer amount in the copolymer is in the range of 1-18% by weight.

26. (Previously Presented) The thermoprocessable TFE copolymers of claim 18, wherein the commoner amount in the polymer is in the range of 2-10% by weight.

27. (Currently Amended) The thermoprocessable TFE copolymers of claim 18, wherein the one or more monomers containing at least one unsaturation of ethylene type is of general formula $\text{CFX}_{\text{AI}}=\text{CX}_{\text{AI}}\text{OCF}_2\text{OCF}_3\text{CF}_2\text{Y}_{\text{AI}}$ $\text{CFX}_{\text{AI}}=\text{CX}_{\text{AI}}\text{OCF}_2\text{OCF}_2\text{CF}_2\text{Y}_{\text{AI}}$ (A-II), wherein $\text{Y}_{\text{AI}} = \text{F}$ or OCF_3 ; $\text{X}_{\text{AI}} = \text{F}$ or H .

28. (Currently Amended) The thermoprocessable TFE copolymers of claim 27, wherein the compounds of general formula $\text{CFX}_{\text{AI}}=\text{CX}_{\text{AI}}\text{OCF}_2\text{OCF}_3\text{CF}_2\text{Y}_{\text{AI}}$ $\text{CFX}_{\text{AI}}=\text{CX}_{\text{AI}}\text{OCF}_2\text{OCF}_2\text{CF}_2\text{Y}_{\text{AI}}$ (A-II) are selected from:

(MOVE I) $\text{CF}_3=\text{CFOCF}_2\text{OCF}_2\text{CF}_3$ (A-III); and

(MOVE II) $\text{CF}_2=\text{CFOCF}_2\text{OCF}_2\text{CF}_2\text{OCF}_3$ $\text{CF}_2=\text{CFOCF}_2\text{OCF}_2\text{CF}_2\text{OCF}_3$ (A-IV).

29. (Previously Presented) The thermoprocessable TFE copolymers of claim 18, wherein the acid electrolyte has pH values in the range of 0.4-1.6.

30. (Previously Presented) The thermoprocessable TFE copolymers of claim 18, wherein a drying step is carried out on the thermoprocessable polymer powder at a temperature of 230° to 280°C, and the thermoprocessable TFE copolymers contain an amount of extractable cations lower than 1 ppm and an amount of residual surfactants lower than about 10 ppm.

31. (Withdrawn and Currently Amended) The compounds of general formula: $\text{CFX}_{\text{A}1}=\text{CX}_{\text{A}1}\text{OCF}_2\text{OCF}_3\text{CF}_2\text{Y}_{\text{A}1}$ $\underline{\text{CFX}_{\text{A}1}=\text{CX}_{\text{A}1}\text{OCF}_2\text{OCF}_2\text{CF}_2\text{Y}_{\text{A}1}}$ (A-II), wherein $\text{Y}_{\text{A}1} = \text{F or OCF}_3$; $\text{X}_{\text{A}1} = \text{F or H}$.

32. (Withdrawn and Currently Amended) The compounds of general formula of claim 31, selected from (MOVE I) $\text{CF}_3=\text{CFOCF}_2\text{OCF}_2\text{CF}_3$ (A-III) and (MOVE II) $\text{CF}_2=\text{CFOCF}_2\text{OCF}_2\text{CF}_2\text{OCF}_3$ $\underline{\text{CF}_2=\text{CFOCF}_2\text{OCF}_2\text{CF}_2\text{OCF}_3}$ (A-IV).

33. (Currently Amended) Thermoprocessable TFE copolymers obtained by polymerization of TFE with one or more monomers containing at least one unsaturation of ethylene type selected from the following:

- C₃-C₈ perfluoroolefins;

- C₂-C₈ hydrogenated fluoroolefins, selected from vinyl fluoride (VF), vinylidene fluoride (VDF), tri-fluoroethylene, hexafluoroisobutene and (perfluoroalkyl)ethylene perfluoroalkylethylene CH₂=CH-R_f, wherein R_f is a C₁-C₆ perfluoroalkyl;
- C₂-C₈ chloro- and/or bromo- and/or iodo-fluoroolefins;
- (per) fluoroalkylvinylethers (PAVE) CF₂=CFOR_f, wherein R_f is a C₁-C₆ (per) fluoroalkyl;
- (per) fluoro-oxyalkylvinylethers CF₂=CFOX, wherein X is: a C₁-C₁₂ alkyl, a C₁-C₁₂ oxyalkyl, or a C₁-C₁₂ (per) - fluoro oxyalkyl having one or more ether groups;
- fluorodioxoles;
- non conjugated dienes of the type:

$$\text{CF}_2=\text{CFOCF}_2\text{CF}_2\text{CF}=\text{CF}_2,$$

$$\text{CFX}^1=\text{CX}^2\text{OCX}^3\text{X}^4\text{OCX}^2=\text{CX}^1\text{F}$$

wherein X¹ and X², equal to or different from each other, are F, C₁ or H; X³ and X⁴, equal to or different from each other, are F or CF₃, which during the polymerization cyclopolymerize; and
- fluorovinylethers (MOVE) of general formula:

$$\text{CFX}_{\text{AI}}=\text{CX}_{\text{AI}}\text{OCF}_2\text{OR}_{\text{AI}}$$

(A-I) wherein R_{AI} is a C₂-C₆ linear, branched or C₅-C₆ cyclic (per)fluoroalkyl group, or a C₂-C₆ linear, branched (per)

fluoro oxyalkyl group, containing from one to three oxygen atoms; when R_{Al} is a fluoroalkyl or a fluorooxyalkyl group as above it can contain from 1 to 2 atoms, equal or different, selected from the following: H, Cl, Br, I; X_{Al} = F, H

wherein the thermoprocessable TFE copolymers are in gel form and contain an amount of extractable cations lower than 1 ppm and an amount of surfactant lower than 10 ppm.